Monongahela River Mine Pool Electrofishing Survey, 2003, with Notes on the Application of the Ohio River Fish Index to the Monongahela River.

Introduction

The Monongahela River is one of the three major rivers collectively known as the Three Rivers System (which also includes the Allegheny and Ohio Rivers) in Pittsburgh, Pennsylvania. The headwaters of the Monongahela are located in the Allegheny Mountains of northern West Virginia (Figure 1). From there it flows primarily northward into Pennsylvania where it meets the Allegheny River to form the Ohio River at Pittsburgh, PA. The main-stem Monongahela is 206 km long and encompasses a drainage area of 19,166 km^2 (ORSANCO 1994). There are nine US Army Corps of Engineers Lock and Dam structures located throughout the main-stem used for commercial navigation.

Over the past 50 years, the Monongahela River has been subjected to high pollution loads, primarily in the form of untreated sewage, industrial effluents and acid mine drainage (Lorson and Smith 2004). This influx of pollution led to degraded biological conditions. These conditions are evident from fish population surveys conducted by the Ohio River Valley Water Sanitation Commission (ORSANCO) at lock and dam structures in the 1960's. These collections were characterized by low species diversity and abundance, including one sampling event from the Maxwell Lock and Dam (MRM 61.2) in 1968, which produced only one specimen of one species (one bluegill, *Lepomis macrochirus*).

Since that time, many initiatives have been put into place to reduce the pollution load received by the Monongahela River. These initiatives have led to improvements in water quality, which subsequently have led to improvements in the fish population. This was demonstrated when a survey in 1988 by ORSANCO at Maxwell Lock and Dam yielded 20 species and much higher biomass than earlier surveys. Further demonstration of this improvement was demonstrated by electrofishing surveys conducted by the Pennsylvania Fish and Boat Commission in the 1990's, which documented a dramatic recovery of this fish resource (Miko and Lorson 1994). These surveys revealed healthy populations of many sport fish, including smallmouth bass, white bass, and sauger. The results of this work indicate that the pollution reduction efforts applied on the Monongahela River have positively influenced fish populations, to the point where the Monongahela now supports a diverse and healthy fish community.

Recent research has discovered a new threat to the biological community and water quality of the Monongahela River. Deep coal mining activities in the basin have created large underground pockets, which over time have filled with water, creating very large mine pools. This water can be highly acidic and contain large amounts of heavy metals. In some cases, this water is pumped and treated, so that it does not discharge into nearby streams. However, in most cases, these abandoned or "orphan" mines have no pump and treat systems. The mine pool of concern with this study is enormous in size, extending in a "football" shape north to Pittsburgh, PA, west to Wheeling, WV, south to

Fairmont, WV and east to Uniontown, PA. Recent extensive studies to document water quality indicate the possibility for the discharge of highly acidic effluents into several streams (Ziemkiewicz and Vandivort 2004). Many discharge points for this mine pool have been identified, but the discharges into Ten Mile (MRM 65.5) and Dunkard (MRM 87.2) Creeks, identified as primary discharge points (Ziemkiewicz and Vandivort 2004), were the main focus of this study (Figures 2 and 3).

The purpose of this research was to document the current condition of the fish community in the Monongahela River at the confluences of both Ten Mile and Dunkard Creeks. Identified as major discharge points, it is crucial that the current state of the biological community around them be documented. In the event a major disaster would occur, this data would serve as a baseline for determining the effect of the blowout and for the subsequent recovery.

Methods

Site Selection

Based on research that indicated them as primary blowout points, electrofishing zones were selected based on proximity to Ten Mile Creek (Maxwell pool) and Dunkard Creek (Grays Landing pool). Zones were selected at the confluence of each stream to observe the direct effect of each. Zones were also located below each tributary to determine the degree of any downstream effects that might occur. Additionally, electrofishing zones were sampled above the confluence of each stream. This method was employed because true "reference" conditions likely do not exist, and therefore a near-field upstream reference is likely more valid for comparison (Reash 1994).

Electrofishing

For this study, fish were collected via nighttime boat electrofishing, a method identified as most effective on large, navigable rivers (Emery et al. 2003, Simon and Sanders 1999, Sanders 1991). Electrofishing was conducted on a single shoreline, covering a distance of 500m, making every attempt to incorporate all available habitats and capture all observed fish. Recent research indicates this distance is sufficient to capture numbers of species to characterize biological integrity (Simon and Sanders 1999). Fish were collected from a total of 20 sampling events comprising 16 zones (Table 1) using a Smith-Root type VI-A electrofishing unit on 5.5 m johnboat. Output amperage was maintained at 8 amps by varying pulse width for a minimum of 1,800 seconds. Dip nets outfitted with 6.35 mm mesh were utilized to capture all stunned fish. All fish netted were placed in a holding tank for later processing. At the conclusion of electrofishing, all fish were identified to the species level, enumerated, measured, weighed, and inspected for deformities, eroded fins, lesions, or tumors (DELT anomalies: Sanders et al 1999). After processing, all fish were returned to the water, except for those whose identification was questionable, (i.e. darters [*Etheostoma* and *Percina*] and minnows [Cyprinidae]) which were preserved with a 10% formalin solution and identified in the laboratory.

Habitat

Several physical habitat parameters were collected at each of the sampling locations. Each 500m zone was divided into six longitudinal transects, spaced 100m apart. At each transect, beginning with the shoreline-water interface, depth and substrate were measured in 3m intervals, out to a distance of 30m from shore. Substrate was classified at each measurement in one of six categories, boulder, cobble, gravel, sand, fines or hardpan. In addition, visual estimates of woody cover (i.e. stumps, logs, brush) and over-hanging vegetation were recorded. Immediate riparian land use, direct human influences (industry, agriculture, dams, etc) and habitat unit (left or right descending bank, inside or outside bend, straight stretch) were also recorded (Emery et al 2003).

Results and Discussion

In 2003, a total of 16 500m zones were sampled by boat electrofishing (8 zones in Maxwell pool associated with Ten Mile Creek and 8 zones in Grays Land pool associated with Dunkard Creek) (Table 1). These samples produced a total of 40 species (Table 2), including one species listed as endangered in Pennsylvania, the silver chub (*Macrohybopsis storiena*). Additional noteworthy species collected include the channel darter (*Percina copelandi*), and smallmouth buffalo (*Ictiobus bubalus*), both listed as threatened in Pennsylvania, and the longnose gar (*Lepisosteous osseus*), river redhorse (*Moxostoma carinatum*) and brook silverside (*Labidesthes sicculus*) listed as species of special concern. The presence of these species serves as further proof that the Monongahela River is currently sustaining and capable of supporting a diverse assemblage of fish.

The fish communities sampled in association with both creeks were very similar in both abundance and composition. Both yielded samples that were dominated by the family Cyprinidae (minnows, carp), with samples collected from the Ten Mile area comprised of 60.8% Cyprinids (Figure 4) and those from the Dunkard area comprising 54.1% (Figure 5). The families Centrarchidae (black bass, sunfish, crappie) and Catostomidae (suckers) combined to make up the bulk of the remaining composition, with 36% at Ten Mile (Figure 4) and 30.4% at the Dunkard Creek sites (Figure 5). Although, the family Percidae (walleye, sauger, perch, darters) only represented about 3.5% of the samples from each area, those collected represented a wide variety of species, including several "trophies" from a fisheries standpoint.

With the lack of evaluation methods on great rivers, defined as hydrologic units with areas greater than 3226 km^2 (Simon and Lyons 1995) and possessing faunal groups characteristic of large rivers (Pflieger 1971), ORSANCO developed the Ohio River Fish Index (ORFIn) (Emery et al 2003) as a means of utilizing the fish population of the Ohio River to evaluate water quality and biological integrity. One of the more long-term goals for use of the ORFIn is the ability to apply it to similar systems. Considering the geohydrological similarities between the Ohio and Monongahela Rivers, it is feasible that the ORFIn may be effectively applied to the Monongahela River.

The ORFIn utilizes 13 metrics (Table 3) of the fish population to evaluate the overall condition of the fish community. Various attributes of the fish population are included in these metrics including abundance, diversity, tolerance, and/or intolerance to perturbation, reproductive and feeding guilds, and overall fish health. For specific information regarding metric selection and metric scoring procedures, see Emery et al 2003.

ORFIn scores were calculated for each site sampled during the 2003 electrofishing surveys. At the Ten Mile Creek locations, the average ORFIn score was 38.8 (Figure 6). Sites above the confluence of this tributary were nearly identical to those below with average scores of 38 and 39.3 respectively (Figure 6). At the Dunkard Creek locations, ORFIn scores averaged 27.9 (Figure 7). Sites above the confluence of this tributary averaged 33.3 and sites below averaged 25.7(Figure 7). Sites below the Dunkard confluence were slightly depressed, even though habitat evaluations indicate that similar habitats are present. In addition to collecting fish data, extensive habitat data was collected at each location, including depth, substrate and woody debris. This data is culminated to provide a habitat classification of A, B, or C type habitats, with "A" being course substrates, "B" intermediate, and "C" sand/fine substrates. Sites below the confluence were of slightly poorer quality than those above (all A's above, A's and B's below), possibly contributing to the lower scores. Further sampling is needed to better explain these results. These results suggest that prior to the potential mine pool blowout, these tributaries are having little influence on fish populations.

In addition to ORFIn scores, each metric was examined individually to examine specific changes within the community. At Ten Mile Creek, the number of species remained fairly consistent throughout all the sites, with the sites producing on average 15.6 species per site (Figure 8). At Dunkard Creek, the number of species metric also remained fairly consistent for sites both above and below the confluence of the tributary, producing a mean value of 13.6 species per sampling location (Figure 9). As evidenced by the final ORFIn scores, this trend of similarity remained consistent throughout the individual metrics at both locations (Figures 10 - 33), with a few exceptions. Among the metrics with more noticeable fluctuations, percent lithophils was noticeably higher above the confluence of Ten Mile Creek, with values above averaging 17.3% of the total catch and those below averaging only 10% (Figure 20). Based on the work of Emery et al 1999, which noted decreased abundance of lithophilic species correlating with increases in sand and finer substrates, this may likely be attributed to the more abundant presence of courser substrates (boulder, cobble, gravel) at the upstream locations. Additionally, the percent detritivores was noticeably higher above the confluence of Dunkard Creek, averaging 12.3% as compared to only 3.5% below (Figure 25).

Conclusions

The electrofishing samples collected from the Monongahela River near the confluences of the two tributaries allowed researchers to accomplish several things. First and foremost, these samples provided baseline fish population data from areas of the

Monongahela River identified as hotspots for a potential mine pool blowout. This mine pool may have the potential to severely impact the biological community, and therefore it was crucial to establish the current condition of the fish population. In addition, this study provided ORSANCO the opportunity to apply the ORFIn to another river system other the Ohio River. A long-term goal of the ORFIn was to identify the usefulness of this index on systems other than the Ohio River. The similarities between the Monongahela and Ohio Rivers provided a good opportunity to test the applicability to another system. The ORFIn was calibrated based on longitudinal location and has been designed to provide expected index scores based on the habitat surveys. Expected index scores varied based on where in the River the sample was collected and over what kind of habitat it was collected. Since the ORFIn has not been calibrated for use on the Monongahela River, were scored as if the sites were collected from the Ohio River near Pittsburgh. This may have caused final index scores to be somewhat skewed. Further research efforts are needed to determine this. Although some calibration efforts may be necessary to render more accurate conclusions about the Monongahela River fish community, it appears that ORFIn can be used to monitor fish populations on the river.

Based upon the fish populations collected in 2003 and the ORFIn scores generated from these collections, the fish community in the Monongahela River is healthy and diverse. The areas around the confluences of Ten Mile and Dunkard Creeks currently do not appear to be affected by the waters from these tributaries, but future-monitoring efforts should be maintained in the event a mine pool blowout should occur.

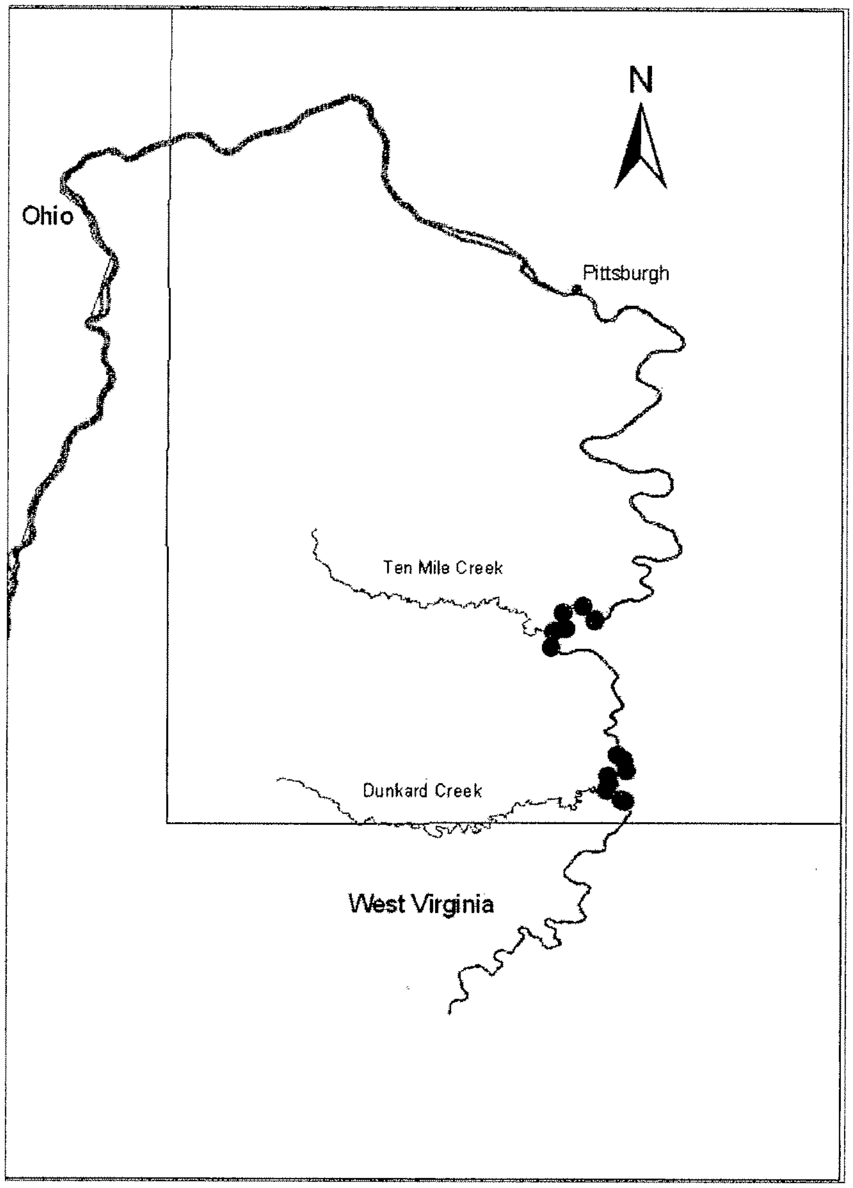


Figure 1. The Monongahela River basin, with electrofishing site locations.

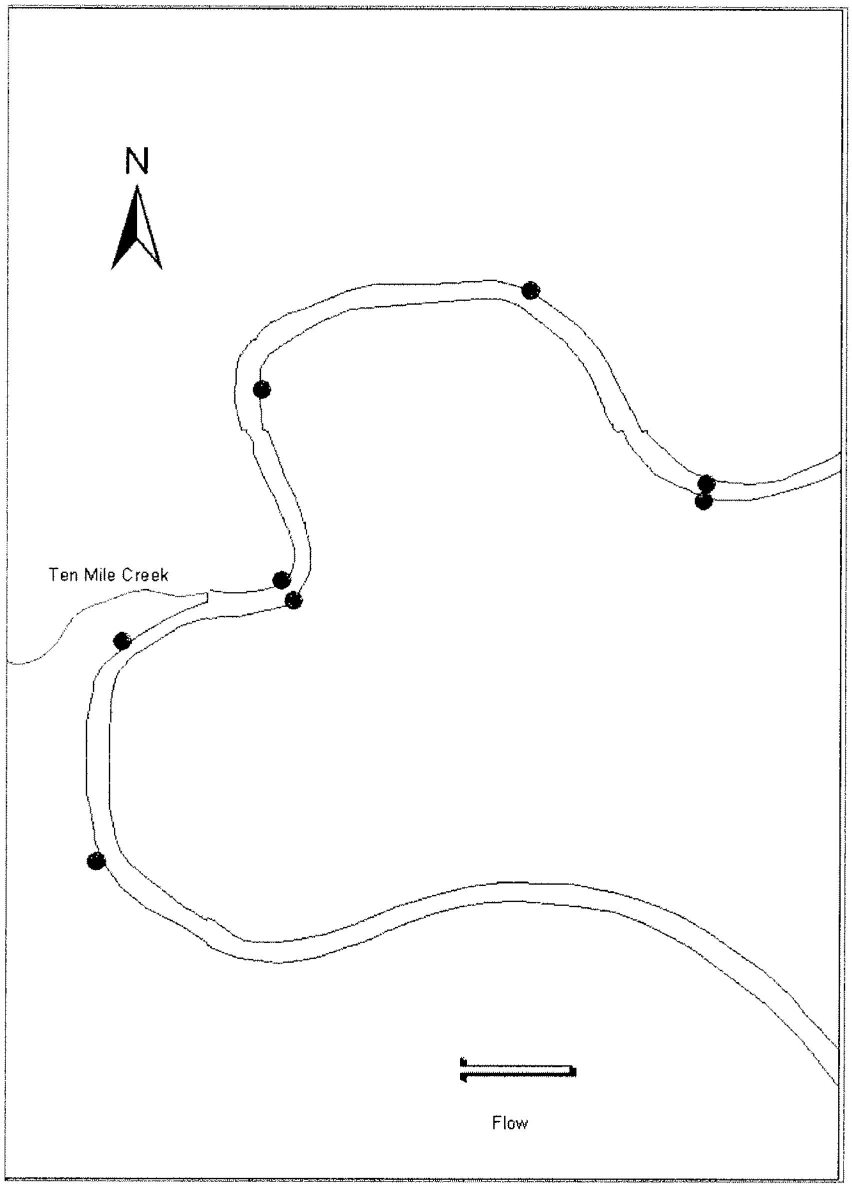

N
Ten Mile Creek
Flow

Figure 2. Ten Mile Creek Electrofishing Site Locations.

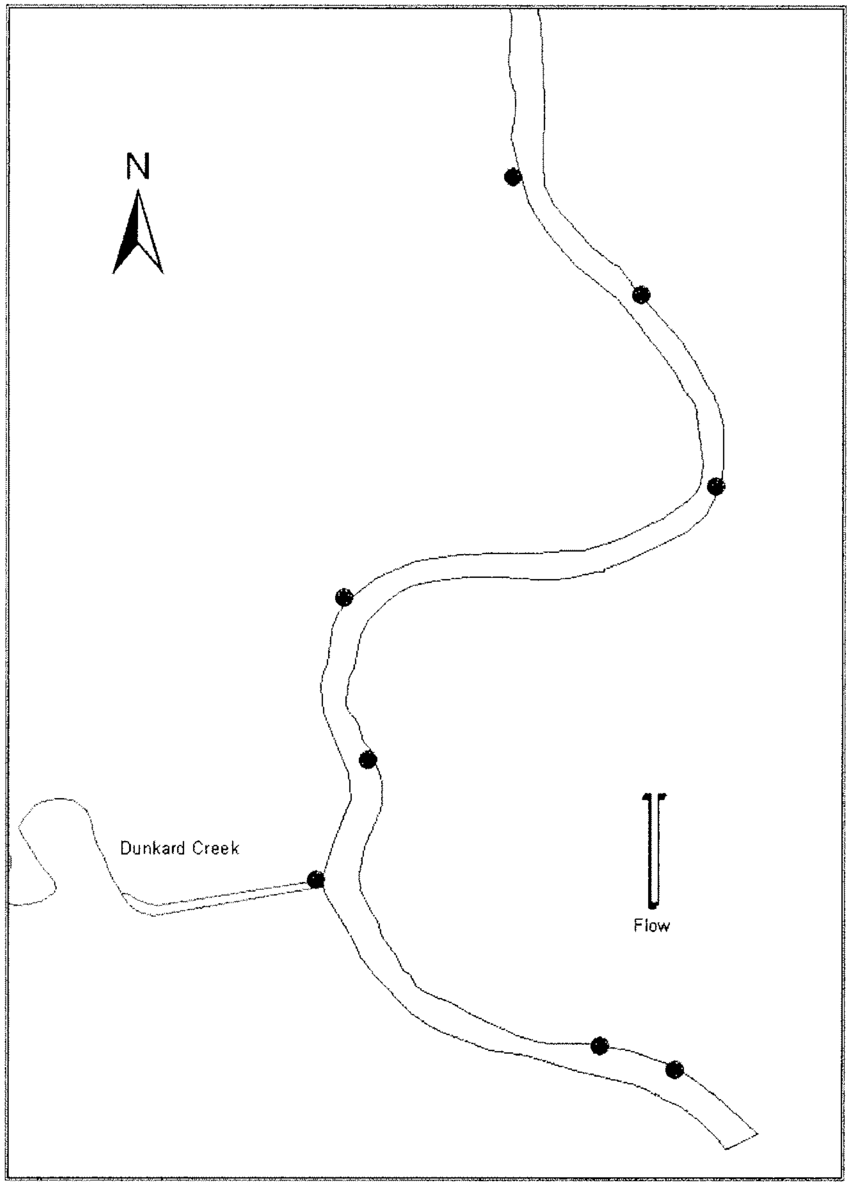


Figure 3. Dunkard Creek Electrofishing Sites

Figure 4. Percent Compostion of Sites Associated with Ten Mile Creek

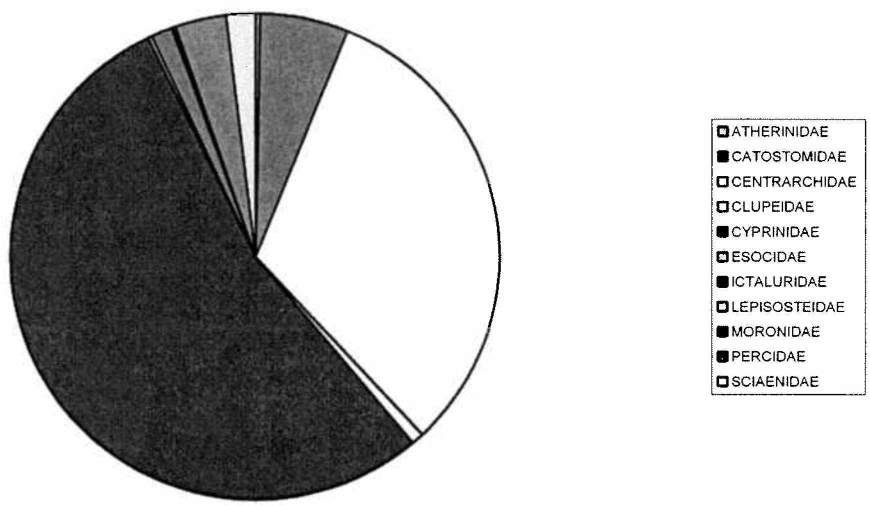


Figure 5. Percent Composition of Sites Associated with Dunkard Creek

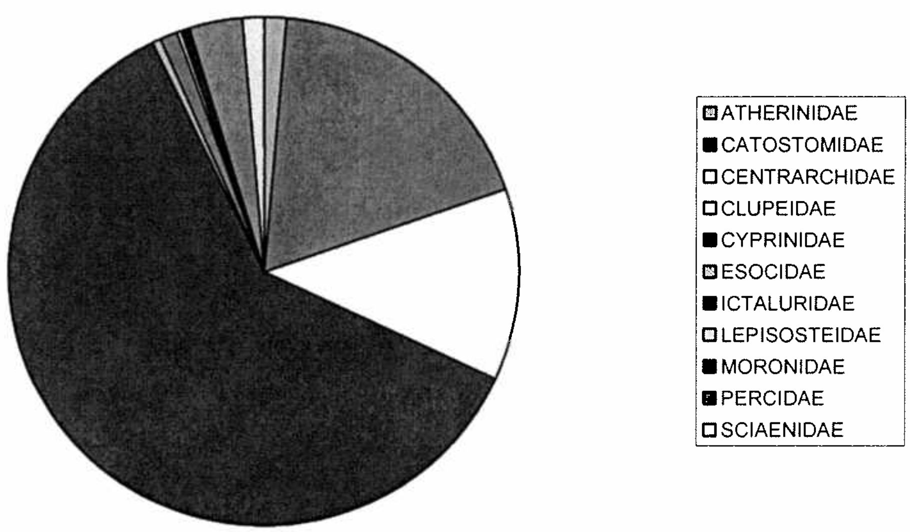


Figure 6. Monongehela River at Tenmile Creek

A, B, C = Habitat Class

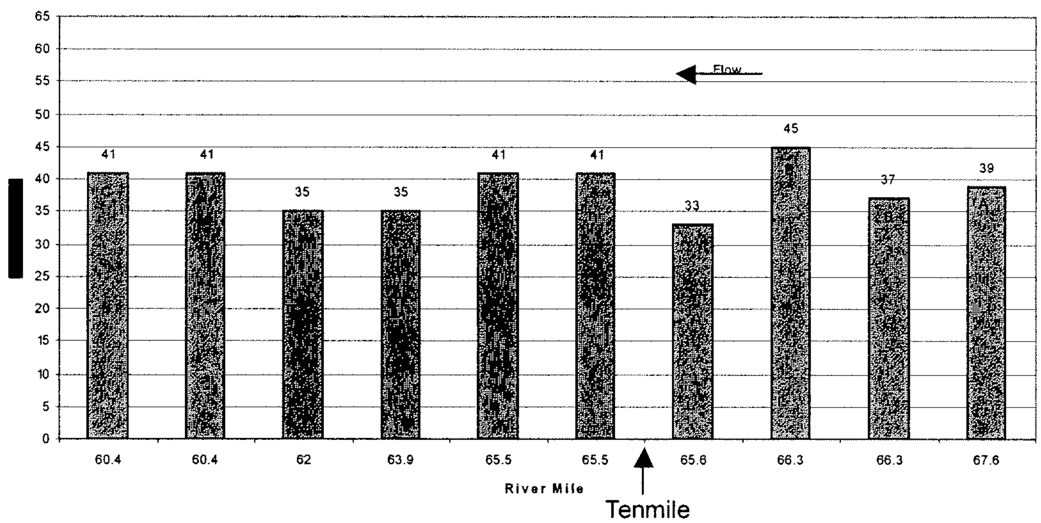
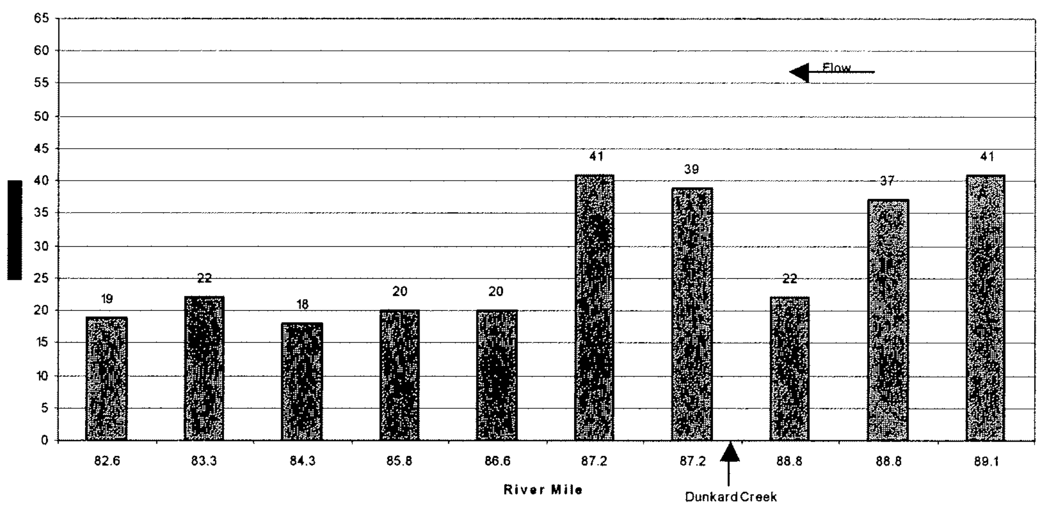


Figure 7. Monongehela River at Dunkard Creek

A, B, C = Habitat Class



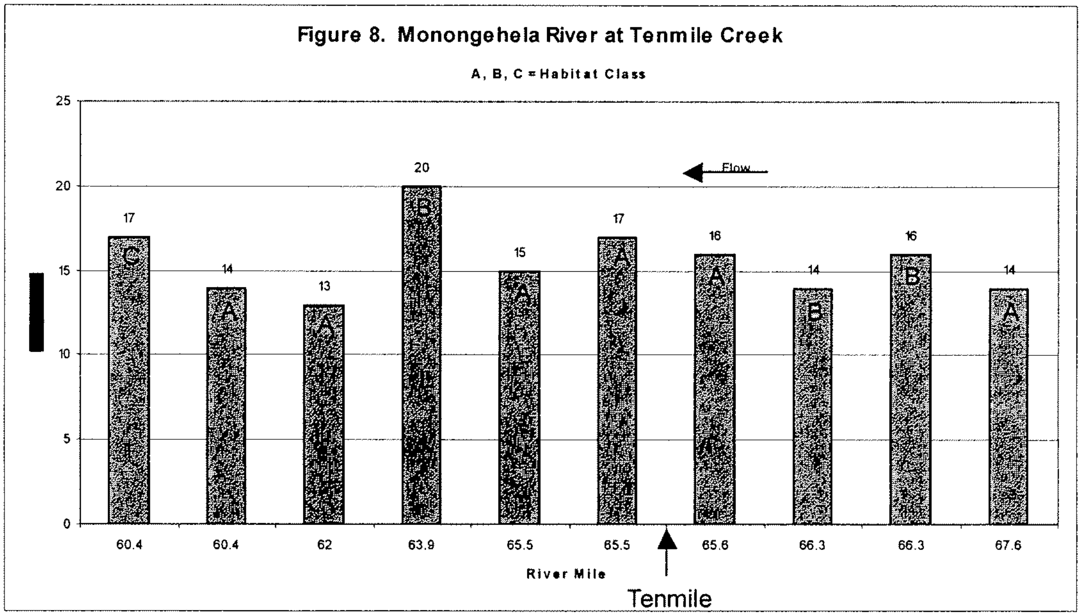


Figure 8. Monongehela River at Tenmile Creek

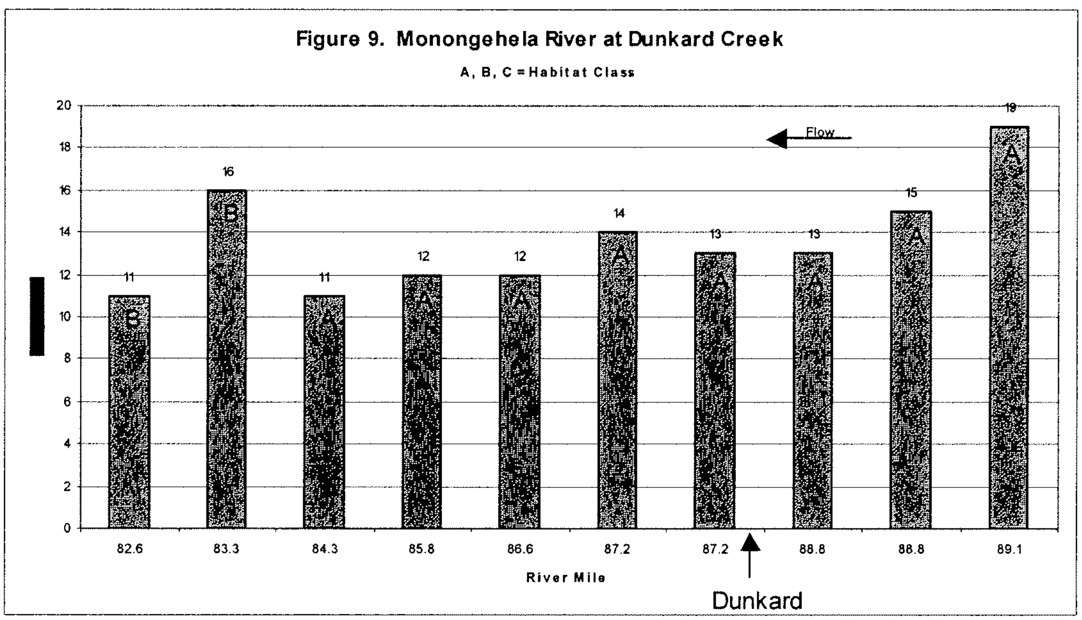


Figure 9. Monongehela River at Dunkard Creek

Figure 10. Monongehela River at Tenmile Creek

A, B, C = Habitat Class

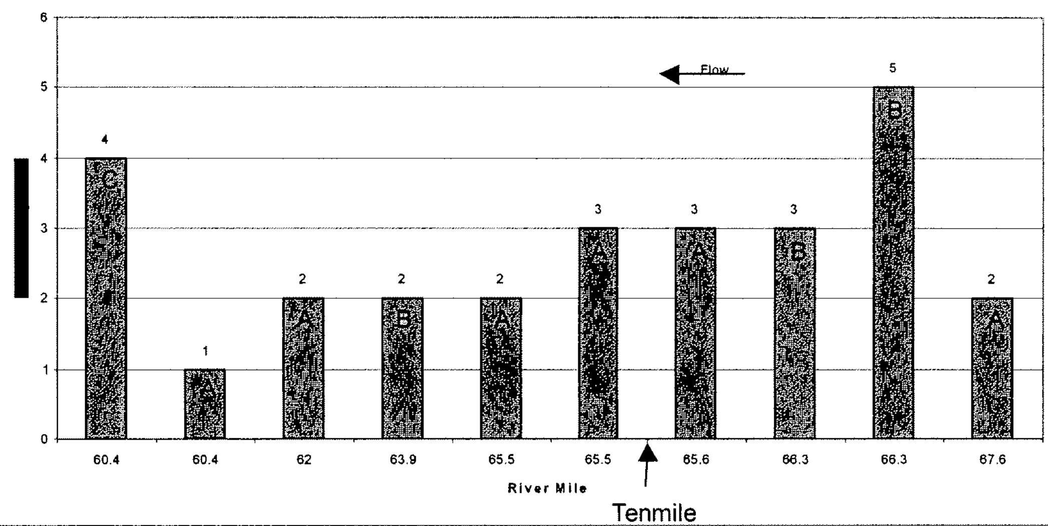
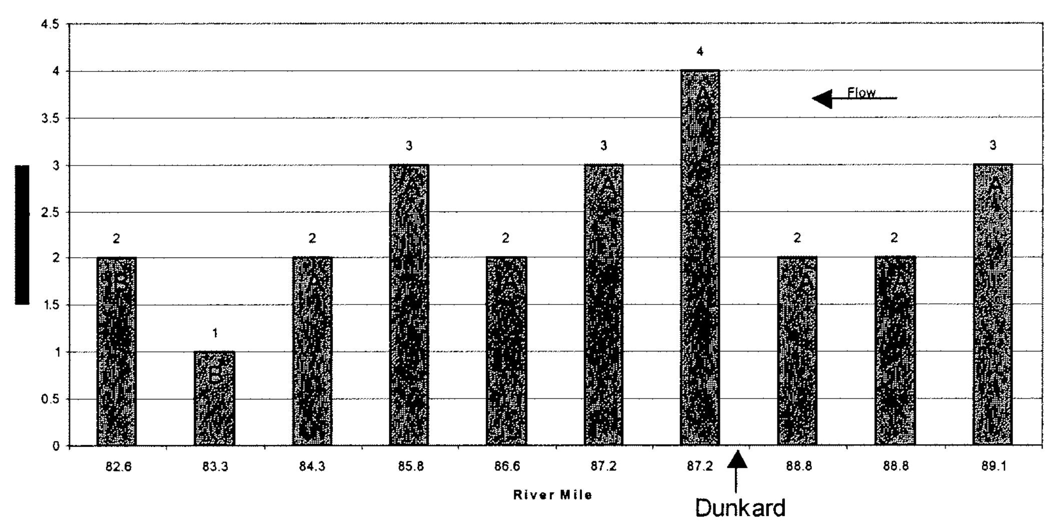
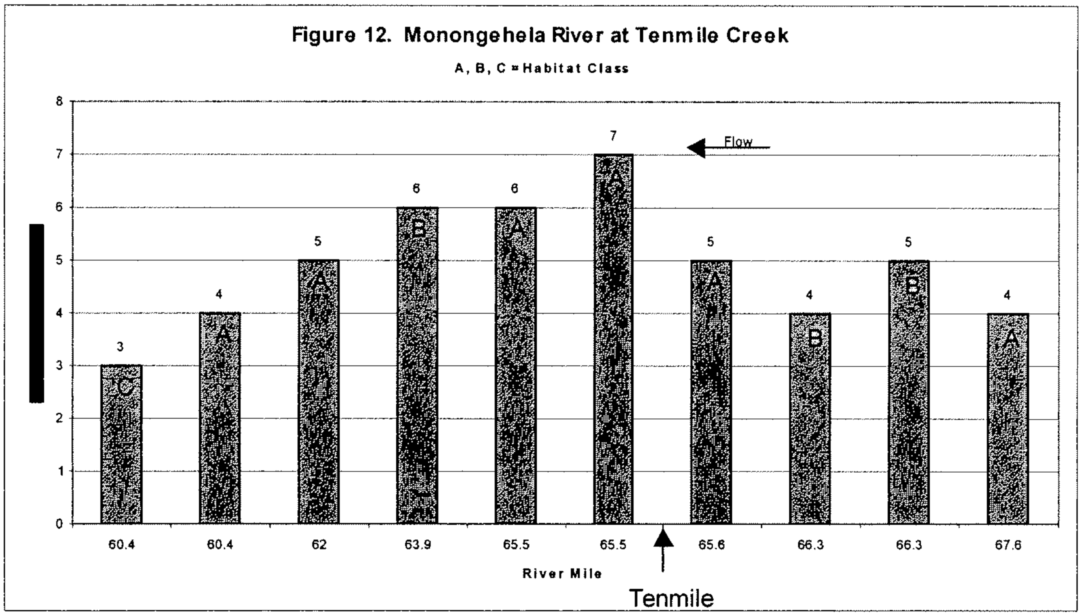


Figure 11. Monongehela River at Dunkard Creek

A, B, C = Habitat Class





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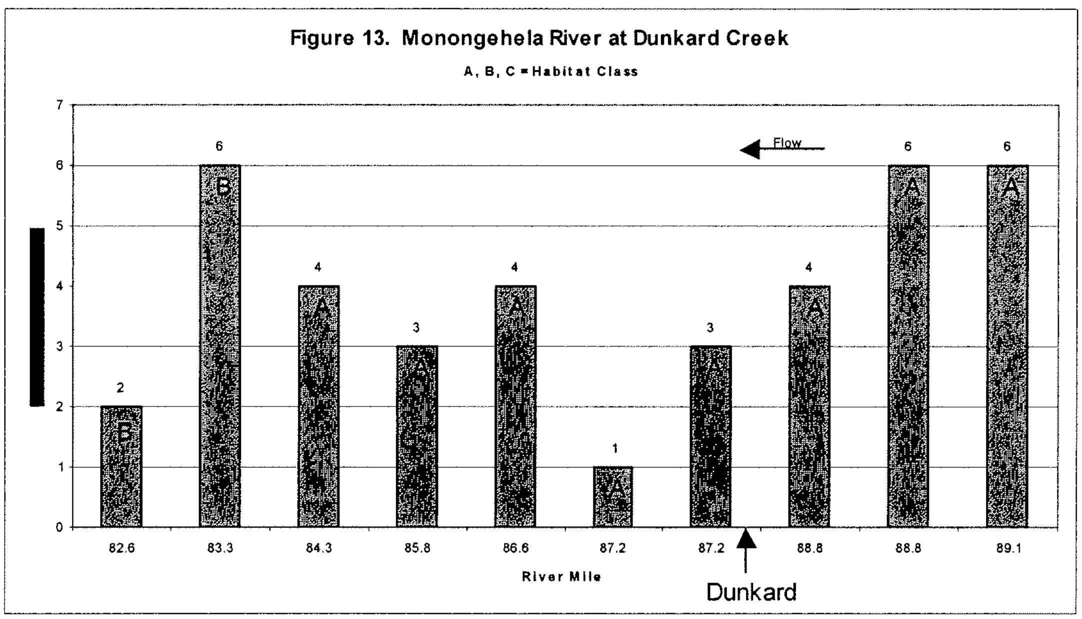

Figure 13. Monongehela River at Dunkard Creek

Figure 14. Monongehela River at Tenmile Creek

A, B, C = Habitat Class

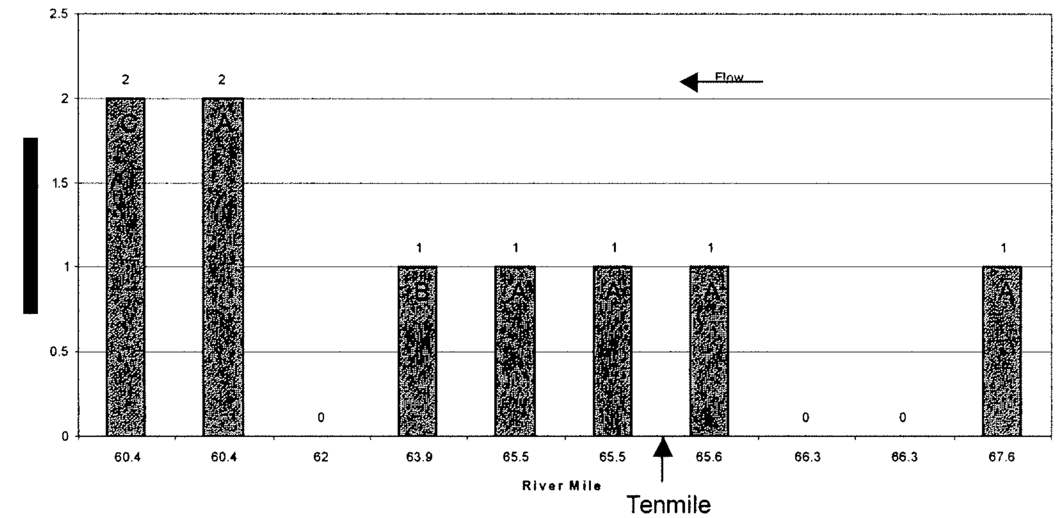

Figure 15. Monongehela River at Dunkard Creek

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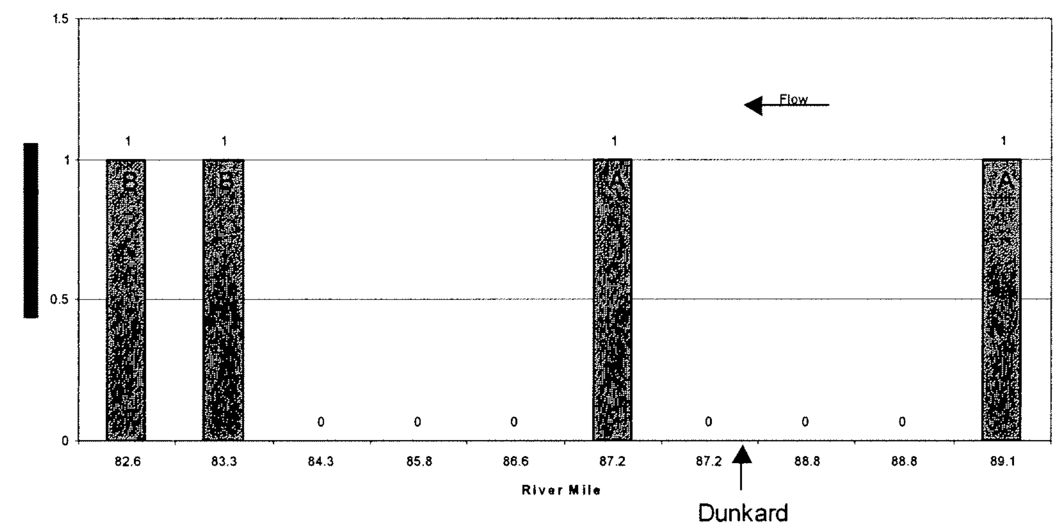

Figure 16. Monongehela River at Tenmile Creek

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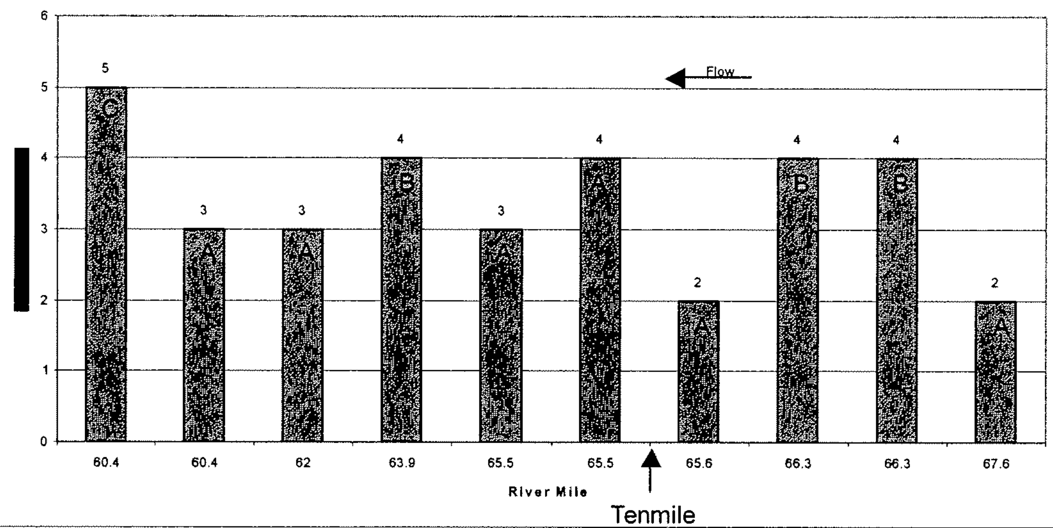

Figure 17. Monongehela River at Dunkard Creek

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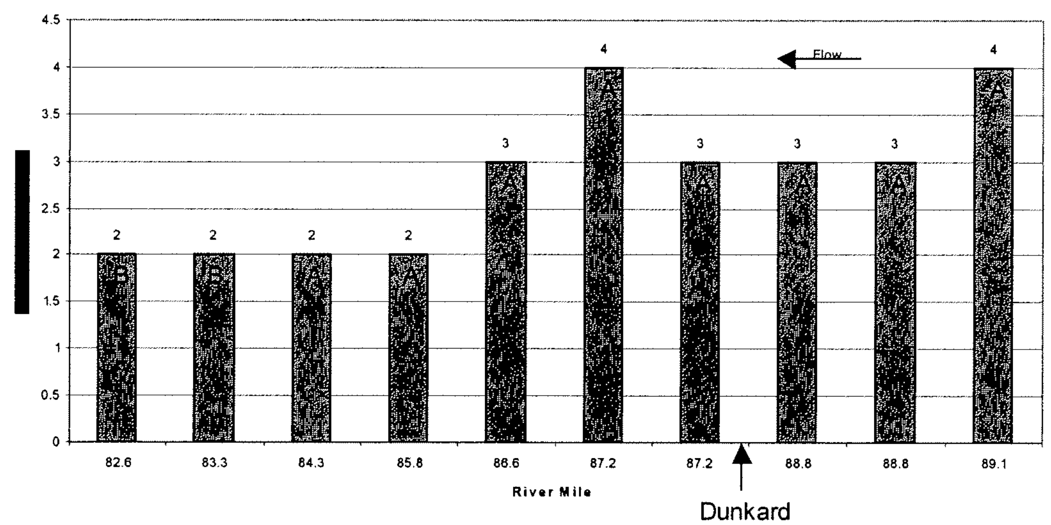

Figure 18. Monongehela River at Tenmile Creek

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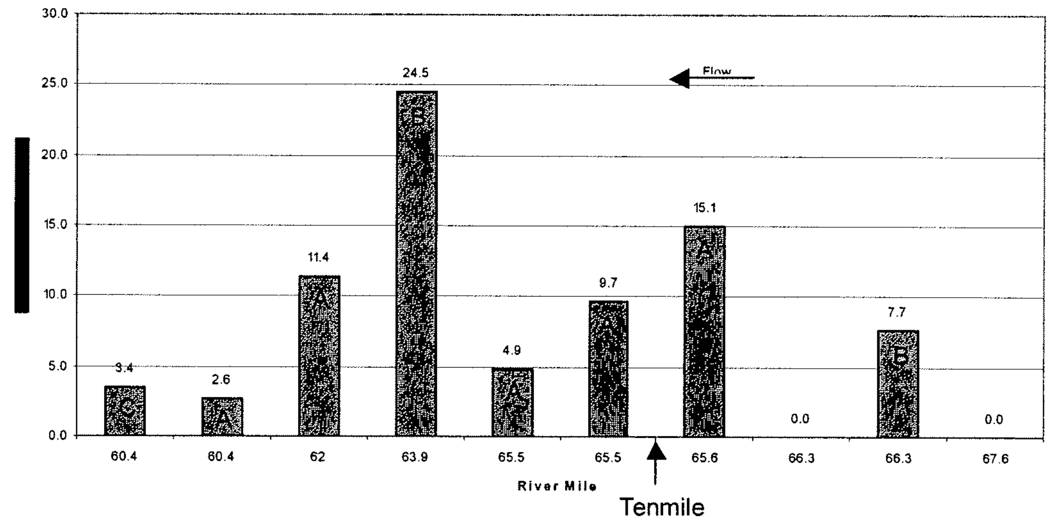

Figure 19. Monongehela River at Dunkard Creek

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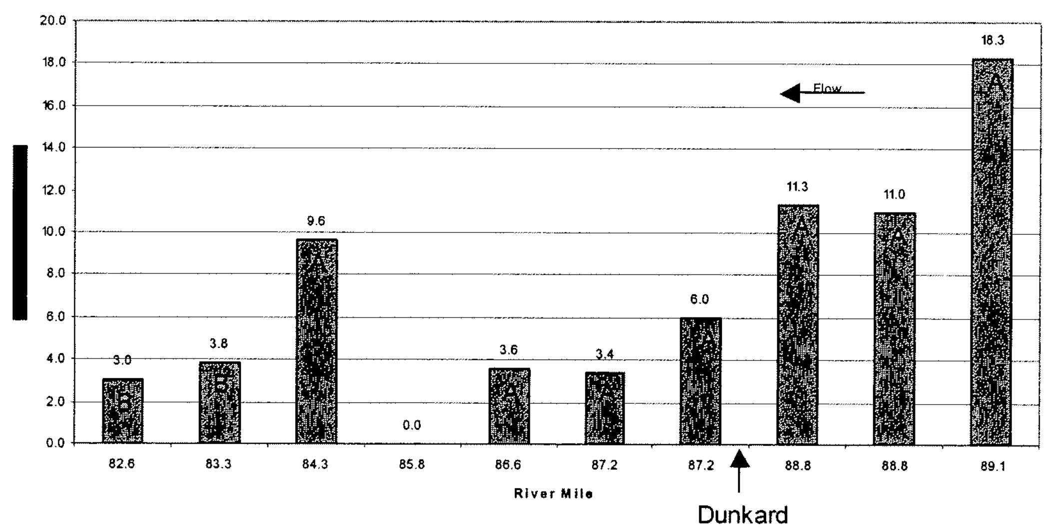

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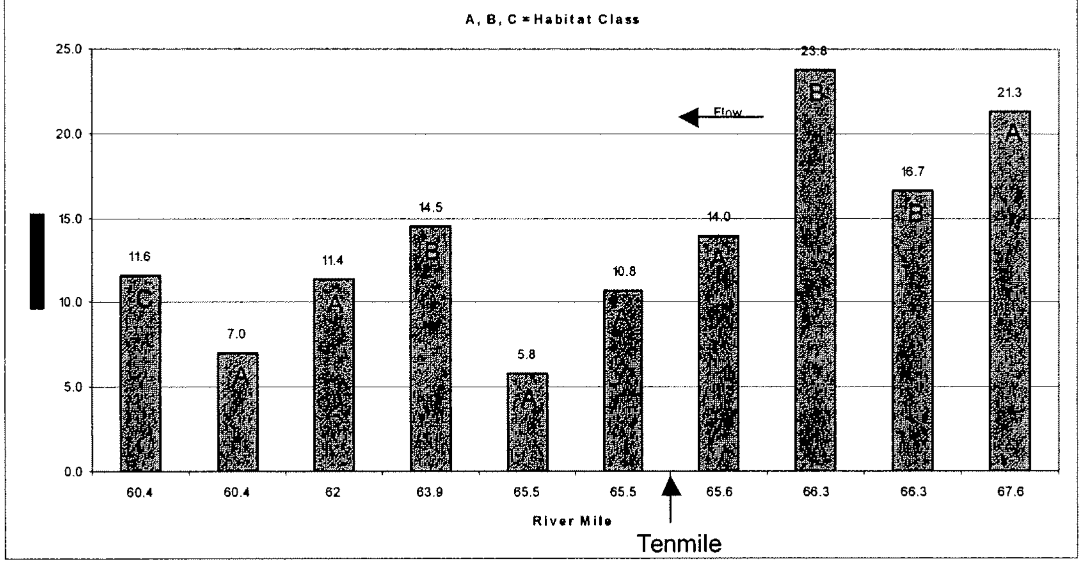

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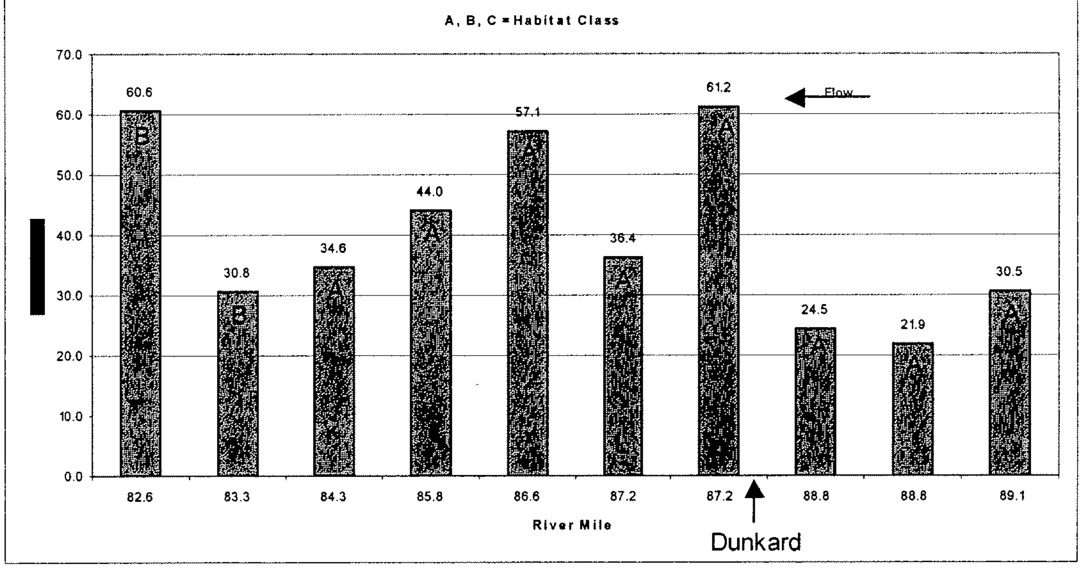

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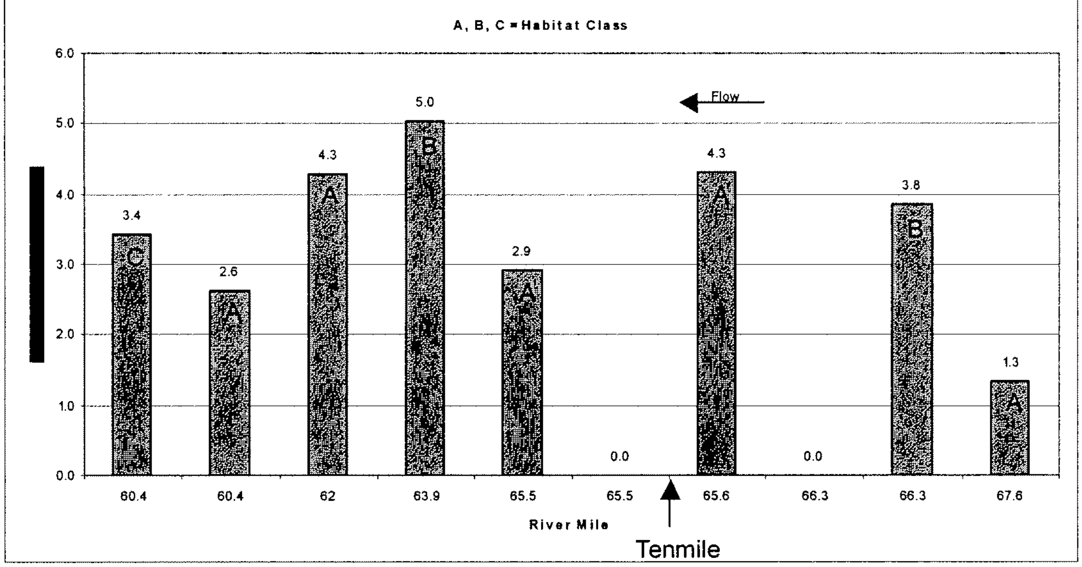

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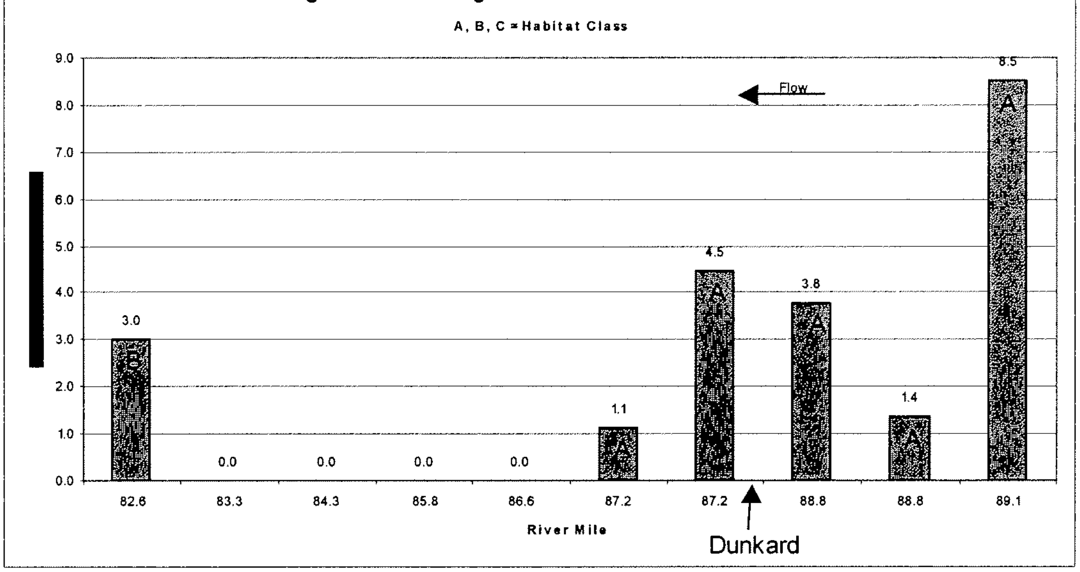

Figure 24. Monongehela River at Tenmile Creek

A, B, C = Habitat Class

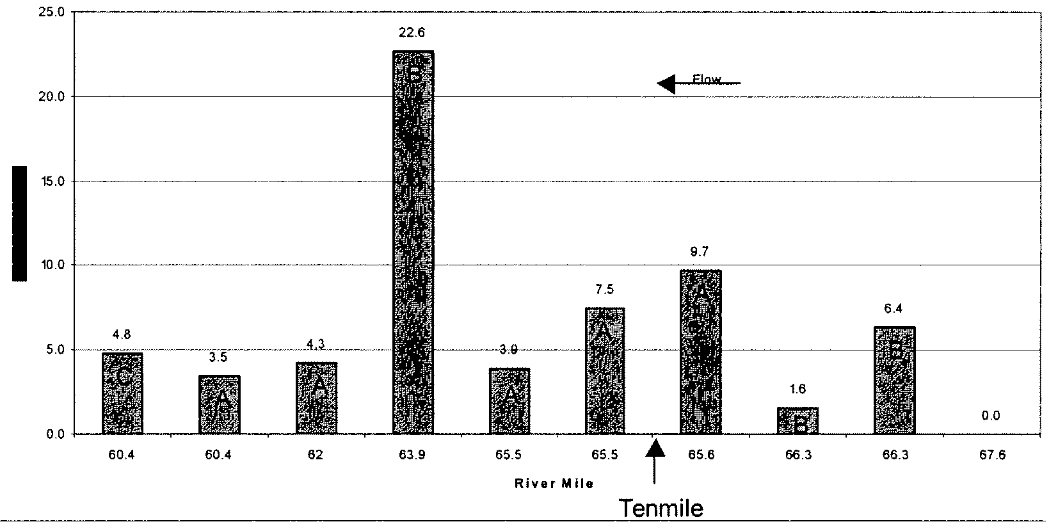

Figure 25. Monongehela River at Dunkard Creek

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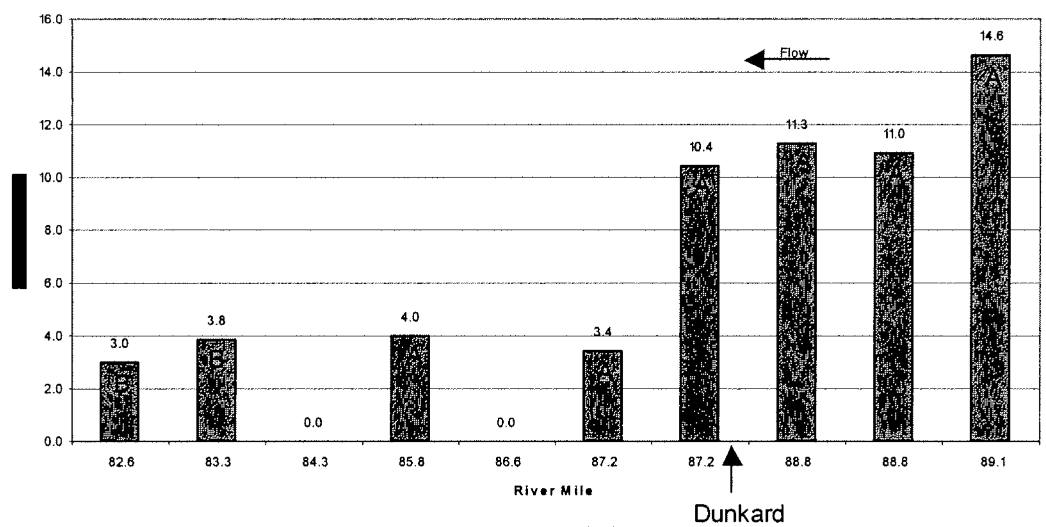

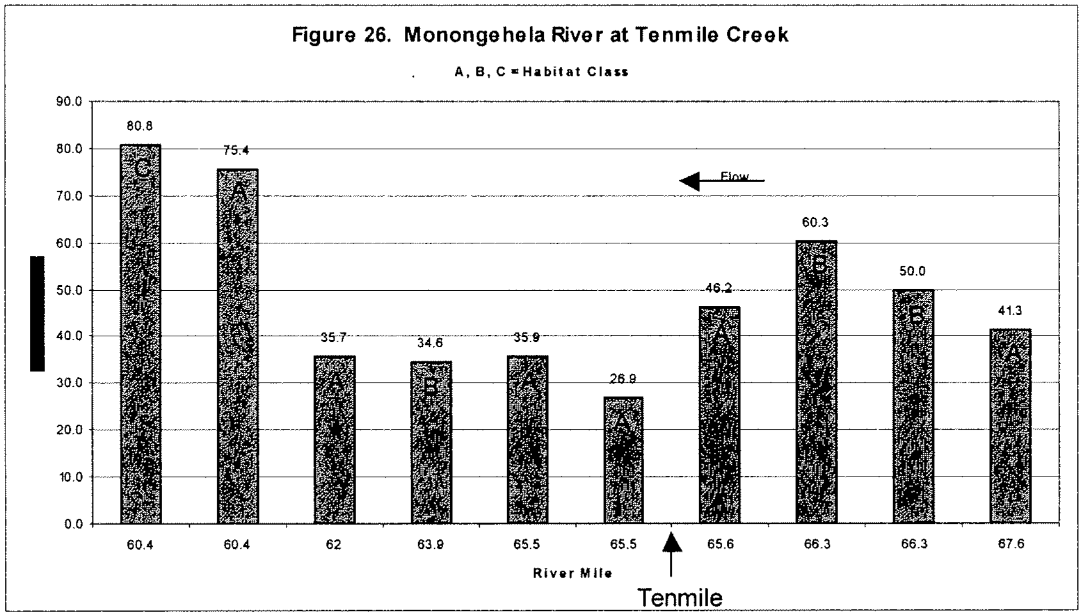

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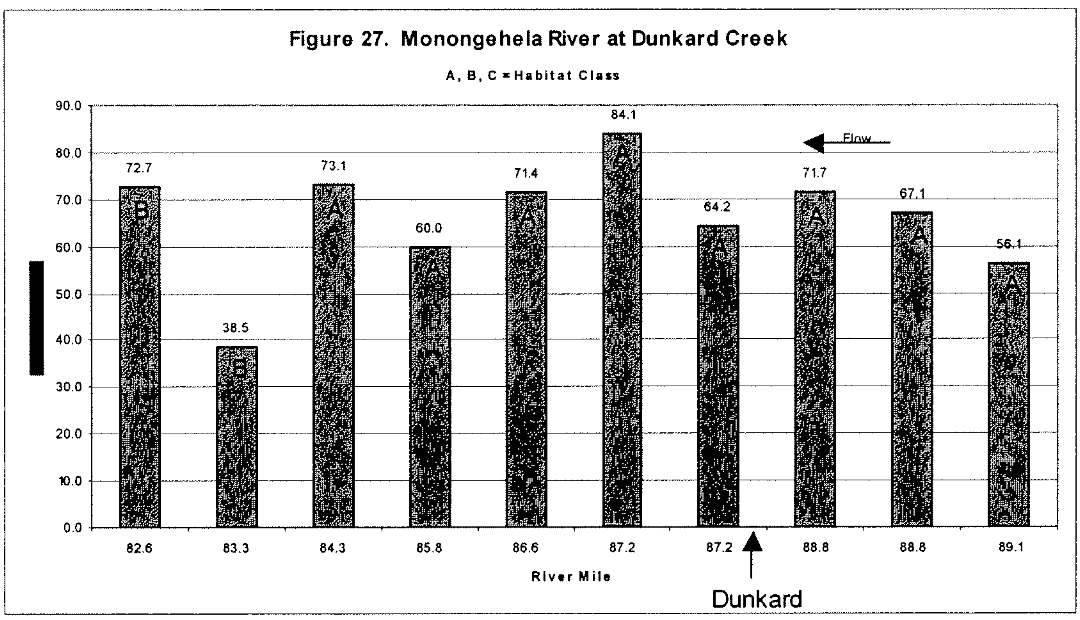

Figure 27. Monongehela River at Dunkard Creek

Figure 28. Monongehela River at Tenmile Creek

A, B, C = Habitat Class

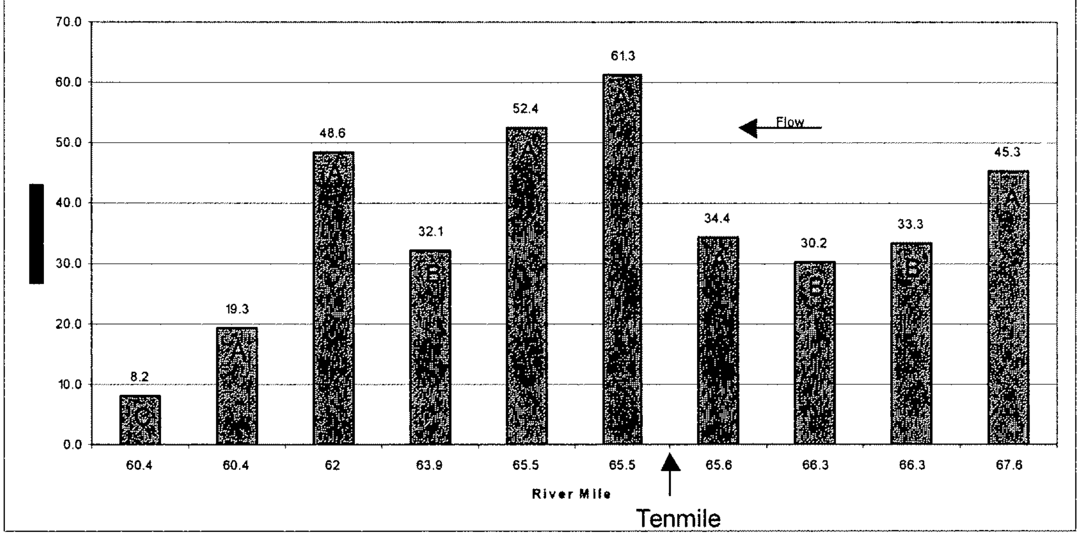

Figure 29. Monongehela River at Dunkard Creek

A, B, C = Habitat Class

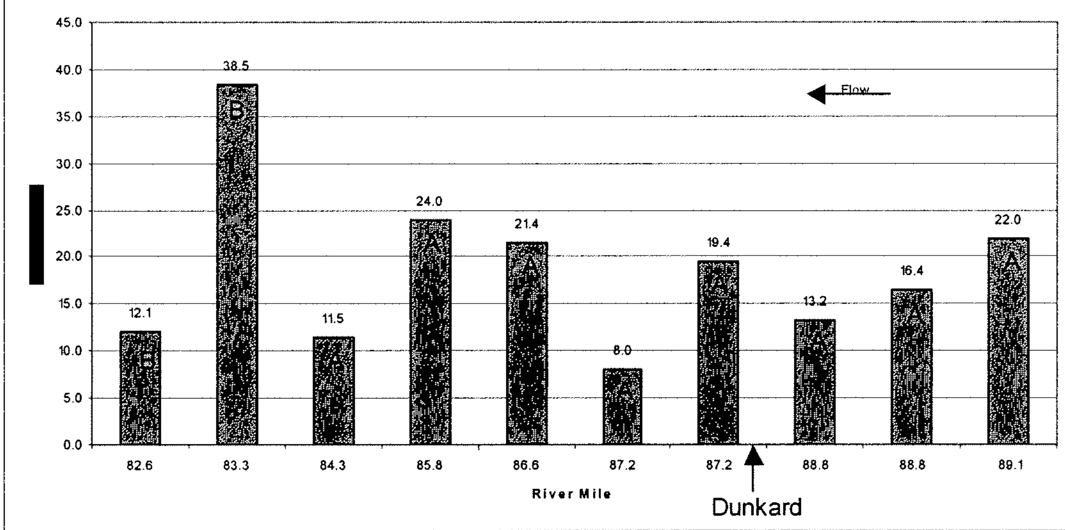

Figure 30. Monongehela River at Tenmile Creek

A, B, C = Habitat Class

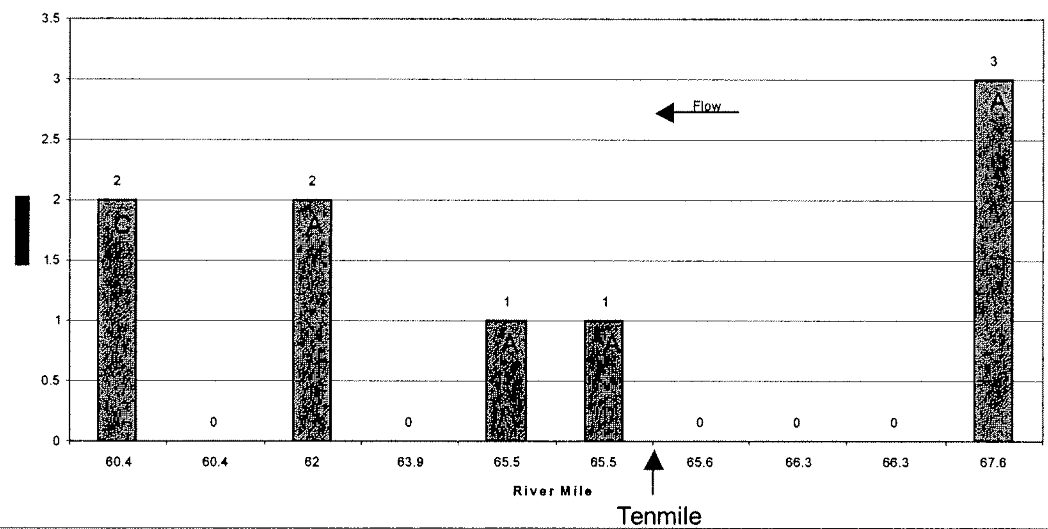

Figure 31. Monongehela River at Dunkard Creek

A, B, C = Habitat Class

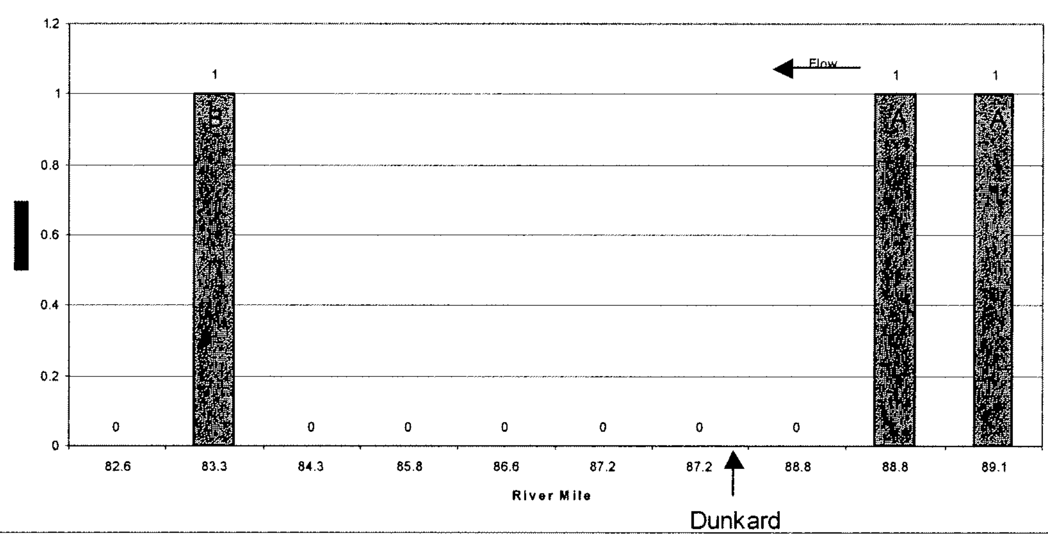

Figure 32. Monongehela River at Tenmile Creek

A, B, C = Habitat Class

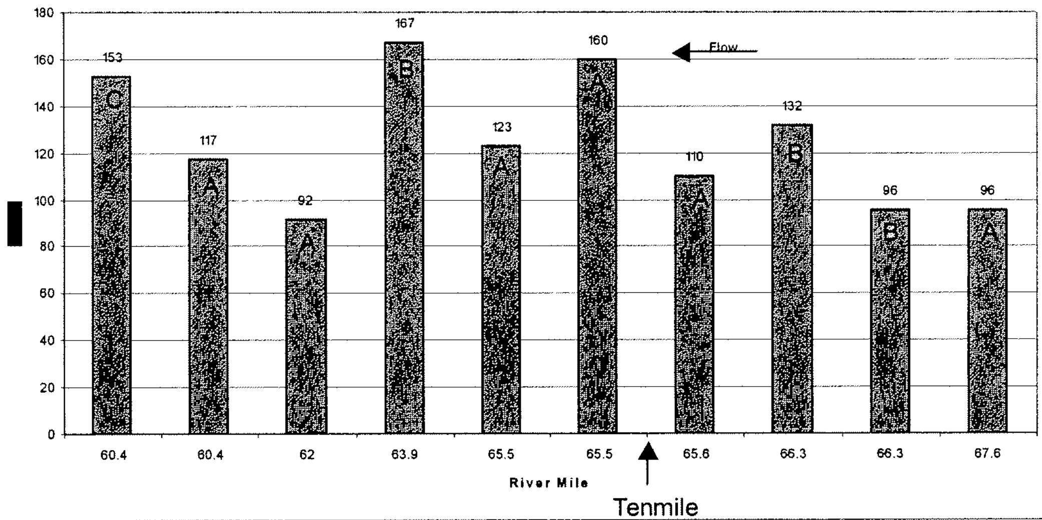

Figure 33. Monongehela River at Dunkard Creek

A, B, C = Habitat Class

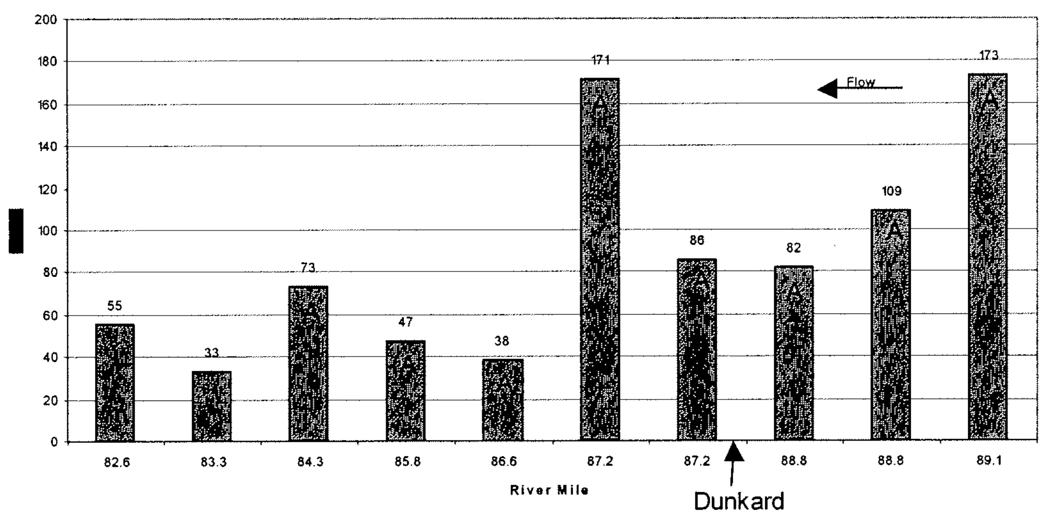

Table 1. Monongahela River Electrofishing Event Locations.

Event Code	Rmi	Bank	Location	Pool	Zone Length (km)	Round	Date
MON060.4LDB102103	60.4	LDB	TEN MILE CR 06	MON #04	0.5	1	21-Oct-03
MON060.4RDB102103	60.4	RDB	TEN MILE CR 05	MON #04	0.5	1	21-Oct-03
MON062.0LDB100803	62	LDB	TEN MILE CR 04	MAXWELL	0.5	1	08-Oct-03
MON063.9RDB100803	63.9	RDB	TEN MILE CR 03	MAXWELL	0.5	1	08-Oct-03
MON065.5RDB100703	65.5	RDB	TEN MILE CR 02	MAXWELL	0.5	1	07-Oct-03
MON065.5RDB102003	65.5	RDB	TEN MILE CR 02	MAXWELL	0.5	2	20-Oct-03
MON065.6LDB100803	65.6	LDB	TEN MILE CR 01	MAXWELL	0.5	1	08-Oct-03
MON066.3LDB100703	66.3	LDB	TEN MILE REF 02	MAXWELL	0.5	1	07-Oct-03
MON066.3LDB102003	66.3	LDB	TEN MILE REF 02	MAXWELL	0.5	2	20-Oct-03
MON067.6LDB100703	67.6	LDB	TEN MILE REF 01	MAXWELL	0.5	1	07-Oct-03
MON082.6LDB102103	82.6	LDB	DUNKARD CR 06	GRAYS LANDING	0.5	1	21-Oct-03
MON083.3RDB102103	83.3	RDB	DUNKARD CR 05	GRAYS LANDING	0.5	1	21-Oct-03
MON084.3RDB100803	84.3	RDB	DUNKARD CR 04	GRAYS LANDING	0.5	1	08-Oct-03
MON085.8LDB100803	85.8	LDB	DUNKARD CR 03	GRAYS LANDING	0.5	1	08-Oct-03
MON086.6RDB100803	86.6	RDB	DUNKARD CR 02	GRAYS LANDING	0.5	1	08-Oct-03
MON087.2LDB100703	87.2	LDB	DUNKARD CR 01	GRAYS LANDING	0.5	1	07-Oct-03
MON087.2LDB102003	87.2	LDB	DUNKARD CR 01	GRAYS LANDING	0.5	2	20-Oct-03
MON088.8RDB100703	88.8	RDB	DUNKARD REF 02	GRAYS LANDING	0.5	1	07-Oct-03
MON088.8RDB102003	88.8	RDB	DUNKARD REF 02	GRAYS LANDING	0.5	2	20-Oct-03
MON089.1RDB100703	89.1	RDB	DUNKARD REF 01	GRAYS LANDING	0.5	1	07-Oct-03

Table 2. Species List of fishes collected from the Monongahela Electrofishing Surveys.

Species	Scientific Name	PA_Status
BLACK CRAPPIE	*POMOXIS NIGROMACULATUS*	
BLACK REDHORSE	*MOXOSTOMA DUQUESNEI*	
BLUEGILL	*LEPOMIS MACROCHIRUS*	
BLUNTNOSE MINNOW	*PIMEPHALES NOTATUS*	
BROOK SILVERSIDE	*LABIDESTHES SICCULUS*	SC
CHAIN PICKEREL	*ESOX NIGER*	
CHANNEL CATFISH	*ICTALURUS PUNCTATUS*	
CHANNEL DARTER	*PERCINA COPELANDI*	T
COMMON CARP	*CYPRINUS CARPIO*	
EMERALD SHINER	*NOTROPIS ATHERINOIDES*	
FLATHEAD CATFISH	*PYLODICTIS OLIVARIS*	
FRESHWATER DRUM	*APLODINOTUS GRUNNIENS*	
GIZZARD SHAD	*DOROSOMA CEPEDIANUM*	
GOLDEN REDHORSE	*MOXOSTOMA ERYTHRURUM*	
GREEN SUNFISH	*LEPOMIS CYANELLUS*	
HYBRID STRIPER	*MORONE SAXATILIS X CHRYSOPS*	
JOHNNY DARTER	*ETHEOSTOMA NIGRUM*	
LARGEMOUTH BASS	*MICROPTERUS SALMOIDES*	
LOGPERCH	*PERCINA CAPRODES*	
LONGEAR X GREEN SUNFISH	*LEPOMIS MEGALOTIS X CYANELLUS*	
LONGNOSE GAR	*LEPISOSTEUS OSSEUS*	SC
MIMIC SHINER	*NOTROPIS VOLUCELLUS*	
MORONE SP	*MORONE SP*	
PUMPKINSEED	*LEPOMIS GIBBOSUS*	
PUMPKINSEED X GREEN SUNFISH	*LEPOMIS GIBBOSUS X CYANELLUS*	
QUILLBACK CARPSUCKER	*CARPIODES CYPRINUS*	
REDBREAST SUNFISH	*LEPOMIS AURITUS*	
RIVER CARPSUCKER	*CARPIODES CARPIO*	
RIVER REDHORSE	*MOXOSTOMA CARINATUM*	SC
ROCK BASS	*AMBLOPLITES RUPESTRIS*	
SAUGER	*SANDER CANADENSE*	
SHORTHEAD REDHORSE	*MOXOSTOMA MACROLEPIDOTUM*	
SILVER CHUB	*MACRHYBOPSIS STORERIANA*	E
SILVER REDHORSE	*MOXOSTOMA ANISURUM*	
SMALLMOUTH BASS	*MICROPTERUS DOLOMIEU*	
SMALLMOUTH BUFFALO	*ICTIOBUS BUBALUS*	T
SPOTFIN SHINER	*CYPRINELLA SPILOPTERA*	
SPOTTED BASS	*MICROPTERUS PUNCTULATUS*	
WALLEYE	*SANDER VITREUM*	
YELLOW PERCH	*PERCA FLAVESCENS*	

SC = Special concern, T = Threatened, E = Endangered

Table 3. Metrics Included in the Ohio River Fish Index (ORFIn)

Metric
Total Number ofSpecies
Number of Sucker Species
Number of Centrarchid Species
Number of Great River Species
Number of Intolerant Species
Percent Tolerant Individuals
Percent Simple Lithophilic Individuals
Percent Non-native Individuals
Percent Detritivore Individuals
Percent Invertivore Individuals
Percent Piscivore Individuals
Number of DELT Anomalies (Deformities, Erosion, Lesions, Tumors)
Catch per Unit Effort (CPUE)

NawqaStudyUnit	Ecoregion	Huc	State	County	Staid	StationLatitude	StationLongitude	StationName	Reach	Begindate
Allegheny and Monongahela Basins	WESTERN ALLEGHENY PLATEAU	05020005	PENNSYLVANIA	ALLEGHENY	03085000	40.3912	-79.8581	MONONGAHELA RIVER AT BRADDOCK, PA	Reach: A	13-AUG-1997
										10-SEP-1998
				GREENE	03072000	39.7592	-79.9706	DUNKARD CREEK AT SHANNOPIN, PA	Reach: A	07-AUG-1997

Begintime	SampleMediumCode	SampleMedium	BioTDBSampleID	Family	Genus	Species	Subspecies	Taxon	ITISTSN	CommonName	Abundance
0000	FISHCOMM	FISH COMMUNITY	61332	Catostomidae	Ictiobus	bubalus		Ictiobus bubalus	163955	smallmouth buffalo	8
					Moxostoma	erythrurum		Moxostoma erythrurum	163939	golden redhorse	4
						macrolepidotum		Moxostoma macrolepidotum	163928	shorthead redhorse	7
				Centrarchidae	Micropterus	dolomieu		Micropterus dolomieu	168159	smallmouth bass	19
				Clupeidae	Alosa	chrysochloris		Alosa chrysochloris	161707	skipjack herring	12
					Dorosoma	cepedianum		Dorosoma cepedianum	161737	gizzard shad	88
				Cyprinidae	Cyprinus	carpio		Cyprinus carpio	163344	common carp	7
					Notropis	atherinoides		Notropis atherinoides	163412	emerald shiner	628
						volucellus		Notropis volucellus	163421	mimic shiner	1
				Ictaluridae	Ictalurus	punctatus		Ictalurus punctatus	163998	channel catfish	1
				Percichthyidae	Morone	chrysops		Morone chrysops	167682	white bass	3
				Percidae	Percina	caprodes		Percina caprodes	168472	logperch	8
					Stizostedion	canadense		Stizostedion canadense	168509	sauger	4
				Sciaenidae	Aplodinotus	grunniens		Aplodinotus grunniens	169364	freshwater drum	7
0000	FISHCOMM	FISH COMMUNITY	61340	Catostomidae	Ictiobus	bubalus		Ictiobus bubalus	163955	smallmouth buffalo	6
					Moxostoma	erythrurum		Moxostoma erythrurum	163939	golden redhorse	6
						macrolepidotum		Moxostoma macrolepidotum	163928	shorthead redhorse	22
				Centrarchidae	Lepomis	macrochirus		Lepomis macrochirus	168141	bluegill	5
					Micropterus	dolomieu		Micropterus dolomieu	168159	smallmouth bass	45
						punctulatus		Micropterus punctulatus	168161	spotted bass	3
					Pomoxis	nigromaculatus		Pomoxis nigromaculatus	168167	black crappie	1
				Clupeidae	Alosa	chrysochloris		Alosa chrysochloris	161707	skipjack herring	1
					Dorosoma	cepedianum		Dorosoma cepedianum	161737	gizzard shad	24
				Cyprinidae	Cyprinus	carpio		Cyprinus carpio	163344	common carp	16
					Notropis	atherinoides		Notropis atherinoides	163412	emerald shiner	1,071
				Hiodontidae	Hiodon	tergisus		Hiodon tergisus	161906	mooneye	3
				Ictaluridae	Ictalurus	punctatus		Ictalurus punctatus	163998	channel catfish	3
					Pylodictis	olivaris		Pylodictis olivaris	164029	flathead catfish	3
				Lepisosteidae	Lepisosteus	osseus		Lepisosteus osseus	161094	longnose gar	2
				Percichthyidae	Morone	chrysops		Morone chrysops	167682	white bass	1
				Percidae	Percina	caprodes		Percina caprodes	168472	logperch	1
					Stizostedion	canadense		Stizostedion canadense	168509	sauger	8
				Sciaenidae	Aplodinotus	grunniens		Aplodinotus grunniens	169364	freshwater drum	4
1130	FISHCOMM	FISH COMMUNITY	61331	Catostomidae	Hypentelium	nigricans		Hypentelium nigricans	163949	northern hog sucker	55
				Centrarchidae	Ambloplites	rupestris		Ambloplites rupestris	168097	rock bass	19
					Lepomis	cyanellus		Lepomis cyanellus	168132	green sunfish	7
					Micropterus	dolomieu		Micropterus dolomieu	168159	smallmouth bass	15
						punctulatus		Micropterus punctulatus	168161	spotted bass	1
				Cyprinidae	Campostoma	anomalum		Campostoma anomalum	163508	central stoneroller	46
					Cyprinella	spiloptera		Cyprinella spiloptera	163803	spotfin shiner	2
					Notropis	rubellus		Notropis rubellus	163409	rosyface shiner	7
						stramineus		Notropis stramineus	163419	sand shiner	41
						volucellus		Notropis volucellus	163421	mimic shiner	2
					Pimephales	notatus		Pimephales notatus	163516	bluntnose minnow	11
				Ictaluridae	Ameiurus	natalis		Ameiurus natalis	164041	yellow bullhead	14
					Ictalurus	punctatus		Ictalurus punctatus	163998	channel catfish	1
					Noturus	flavus		Noturus flavus	164013	stonecat	3
				Percidae	Etheostoma	blennioides		Etheostoma blennioides	168375	greenside darter	25
						caeruleum		Etheostoma caeruleum	168378	rainbow darter	3
						variatum		Etheostoma variatum	168446	variegate darter	10
						zonale		Etheostoma zonale	168449	banded darter	12
					Percina	caprodes		Percina caprodes	168472	logperch	4
					Stizostedion	canadense		Stizostedion canadense	168509	sauger	2